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(54) DUAL ADJUSTABLE FEATHER JIG

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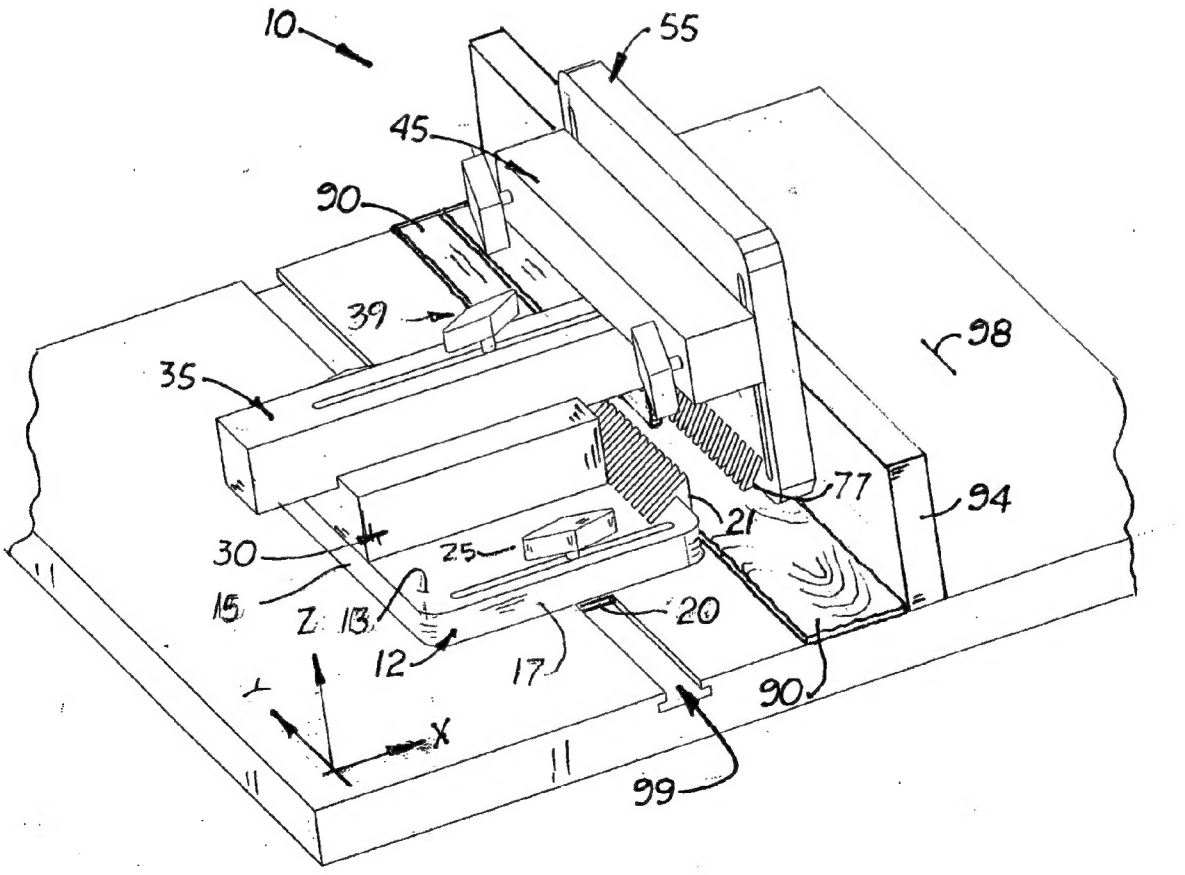
(57) ABSTRACT

A dual adjustable feather jig for simultaneously holding a wood piece firmly against a stationary rip fence and against the top surface of the worktable. The feather jig includes a lower feather board with a 'T' channel bar adjustably mounted on the bottom surface of the lower feather board capable of engaging the 'T' slot formed on a standard worktable. The 'T' channel is adjustably mounted on the lower feather board to allow the lower feather board to move laterally (X direction) over the worktable when the 'T' channel bar is inserted into the 'T' slot. Mounted transversely on the lower feather board is an upper feather board assembly that includes a vertical feather board designed to be extended over a piece of wood stock to hold it down against the worktable. The vertical feather board is connected to a slider arm that slides longitudinally over a riser board securely mounted to the top surface of the lower feather board. Formed on a lateral edge and lower edges of the lower and upper feather boards, respectively, are two sets of diagonally aligned fingers that press against a piece of wood stock against a standard rip fence and against the top surface of the worktable.



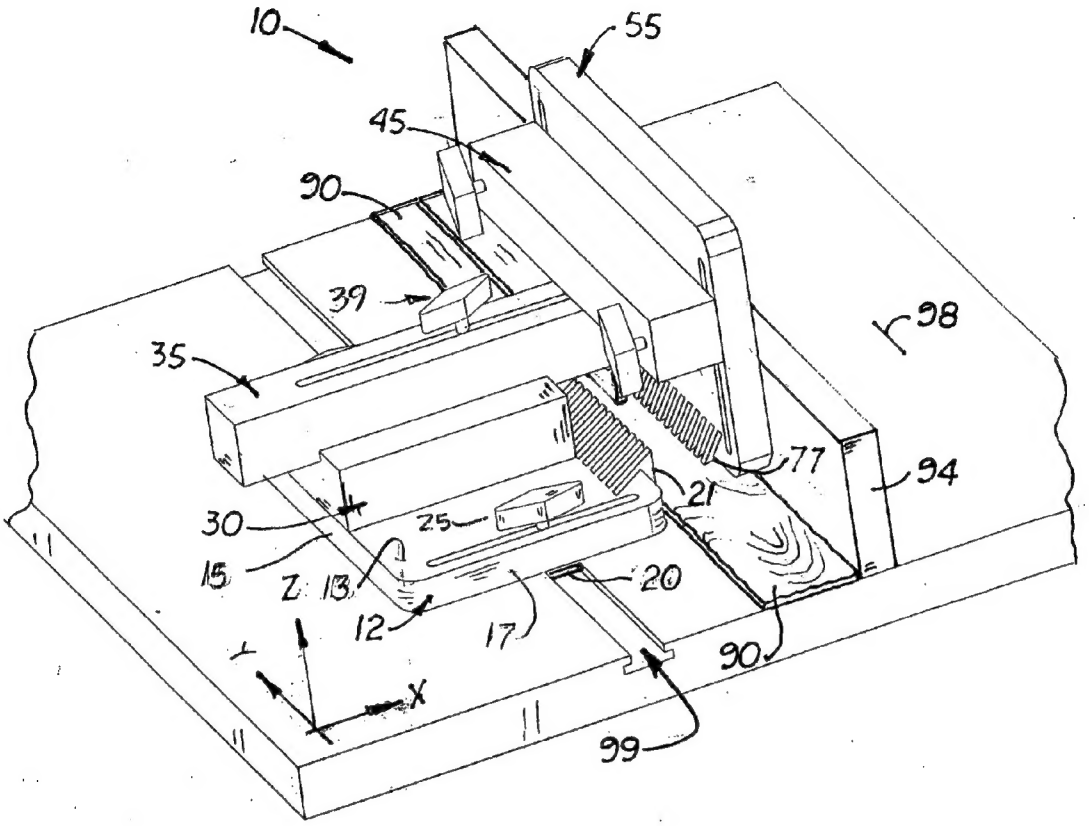


FIG. 1

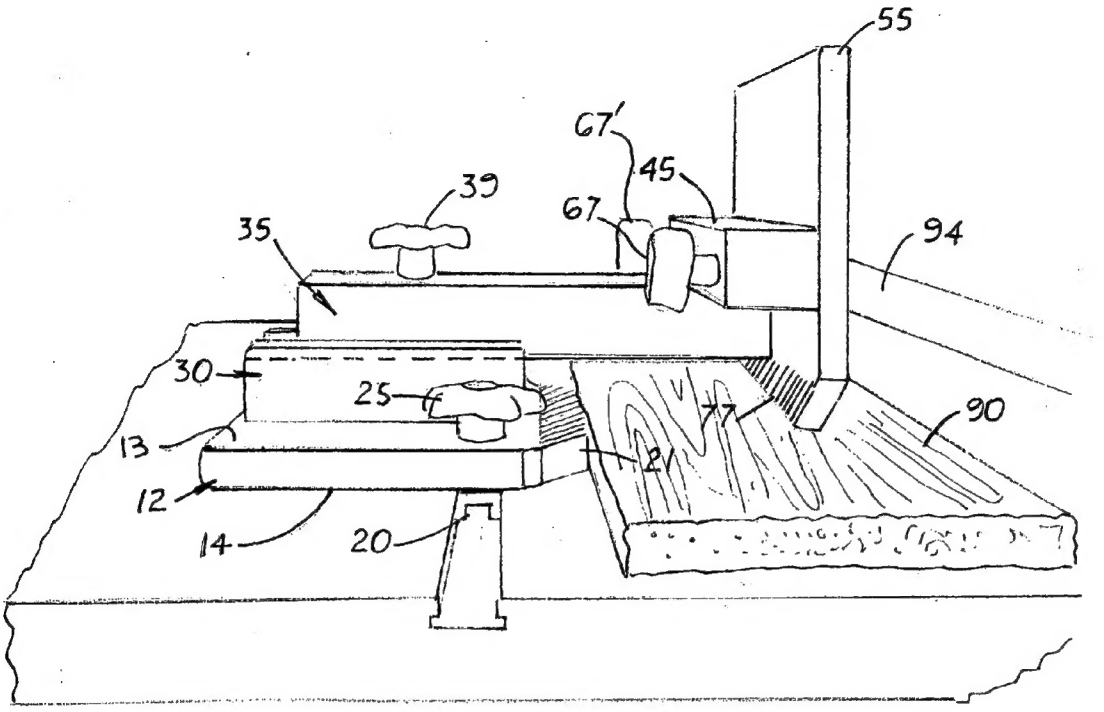


FIG. 2

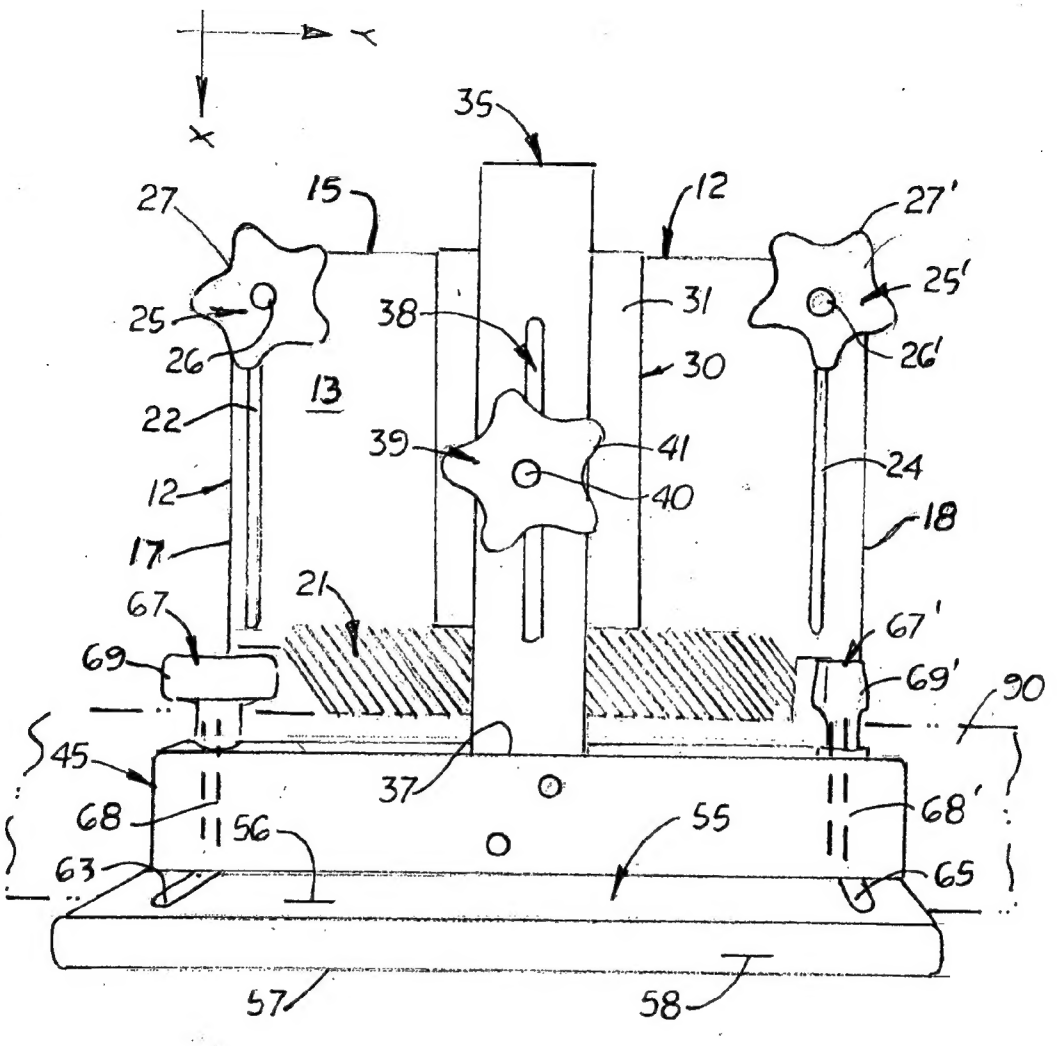

35
27
15
12
27'
25
38
31
25'
26
30
26'
13
22
39
41
24
12
40
18
17
21
67
67'
69
69'
90
45
37
68
56
55
68'
63
65
57
58

FIG. 3

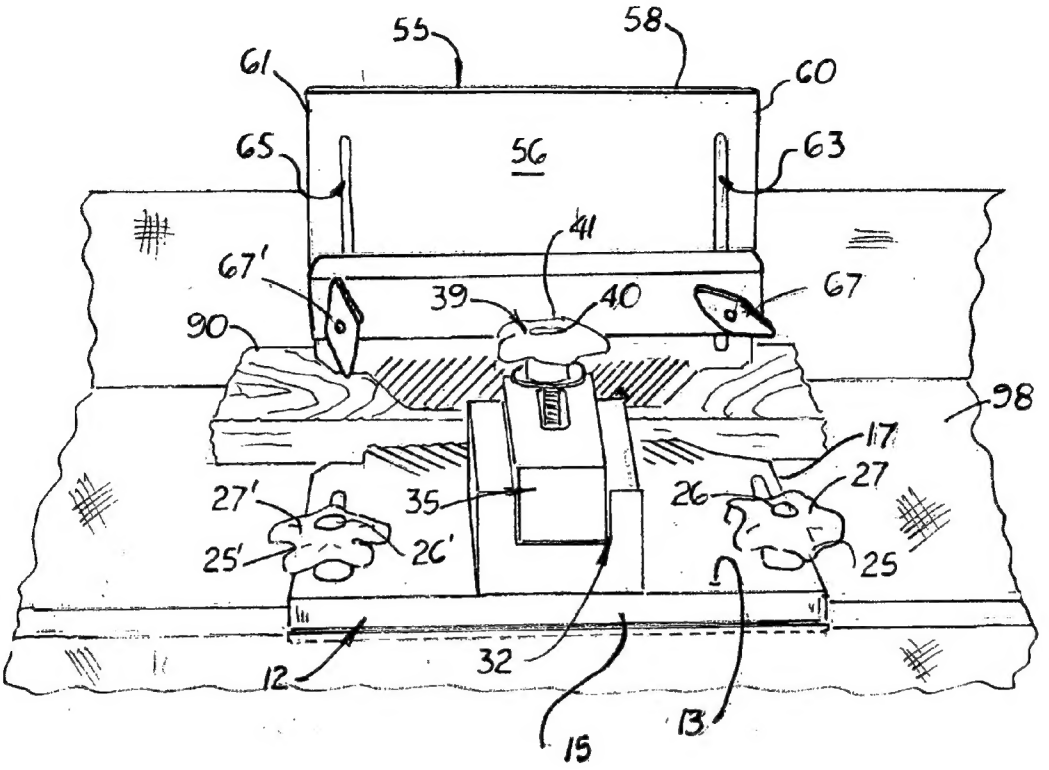

55
58
61
60
65
56
63
41
67'
39
40
67
90
98
17
27'
35
26
27
25'
26'
25
12
32
15
13

FIG. 4

DUAL ADJUSTABLE FEATHER JIG

[0001] This utility patent application claims the benefit of provisional patent application (Ser. No. 60/567,617) filed on May 3, 2004.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] 2. Description of the Related Art

[0004] Table saws and router tables (herein after often include a rip fence attached to the top surface of the table and parallel to the saw blade. Most worktables also include a 'T' slot formed on the top surface of the table that extends parallel to the rib fence and on the side of the saw blade or router bit opposite the rip fence. The 'T' slot is designed to receive a 'T' channel attached to the bottom surface of a miter guide that is used to push the wood stock towards the saw blade or router bit.

[0005] Heretofore, adjustable feather boards have been used on table saws to 'cut' a piece of wood stock in a longitudinal direction parallel with the grain. Feather boards typically include a set of fingers located along one edge that press the piece of wood stock against the rip fence and prevents it from drifting during the cutting or routing operation.

[0006] When cutting a piece of wood stock longitudinally (also, called ripping) or when shaping the wood stock with a router bit, it is also important to firmly hold the wood stock downward against the top surface of the worktable.

[0007] Because many rip fences used today are not securely held down at both ends to the worktable, mounting a vertical feather board to the rip fence is undesirable because the rip fence may rise off the worktable. Also, it is impossible to lateral reposition the vertical feather board with respect to the rip fence if the vertical feather board is directly clamped to the rip fence.

[0008] Unfortunately, no device exists today that simultaneously holds the wood stock firmly against the rip fence and firmly against the top surface of the worktable.

SUMMARY OF THE INVENTION

[0009] These and other objects of the present invention are met by the dual adjustable feather jig disclosed herein for simultaneously holding a piece of wood stock firmly against a rip fence and firmly against the top surface of the worktable. The jig includes a lower feather board with a downward extending 'T'-shaped channel bar slidingly mounted on the bottom surface of the lower feather board. The 'T'-shaped channel bar is designed to slide freely in a standard 'T' slot formed on the top surface of the worktable. Two transversely aligned, elongated slots are formed on the lower feather board that received two-threaded adjustment knobs used to selectively tightened and lock the lower feather board and the 'T'-shaped channel bar together so that the lower feather board may be adjusted and locked in a desired distance from the rip fence.

[0010] Formed on one lateral edge of the lower feather board is a first set of diagonally aligned fingers designed to press against the vertical side of a piece of wood stock to force the wood stock against a rip fence aligned parallel to the 'T' slot

[0011] Mounted transversely on the top surface of the lower feather board is an adjustable upper feather board assembly used to apply a downward force of the wood stock when the wood stock is being cut or shaped. The upper feather board assembly includes an adjustably mounted, vertically aligned upper feather board. Formed on the lower edge of the upper feather board is a second set of diagonally aligned fingers designed to be pressed against the top surface of the work stock to hold it downward against the worktable. The upper feather board is adjustably mounted on the front surface of a horizontally aligned cross bar by two threaded adjustment knobs. During use, the upper feather board may be selectively lowered and raised with respect to the cross bar so that the second set diagonally aligned fingers can be repositioned to press against pieces of wood stock with different thicknesses.

[0012] Securely attached to the center axis of the cross bar is a perpendicularly aligned slider arm. The slider arm is longitudinally aligned and selectively locked in a fixed position to a riser block. The riser block is securely attached to the top surface of the lower feather board and perpendicularly aligned with the 'T' channel bar.

[0013] During use, the lower and upper feather boards are adjusted so that the piece of wood stock may be simultaneously held against the rip fence and forced downward against the top surface of a worktable. Because the 'T' channel bar is designed to fit into a standard 'T' slot, the jig to be used on any standard table saw or router table. Because the positions of the upper and lower feather boards can be adjusted relative to each other, to the rip fence, and to the saw blade and router bit, the jig may be used with a wide variety of different cutting or shaping jobs with different sizes of wood stock.

DESCRIPTION OF THE DRAWINGS

[0014] **FIG. 1** is a perspective view of the dual adjustable feather jig used to hold a wood piece on a worktable with a tool fence.

[0015] **FIG. 2** is a side elevational view of the invention.

[0016] **FIG. 3** is a top plan view of the invention.

[0017] **FIG. 4** is a perspective view of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

[0018] Shown in the accompanying Figs is an adjustable dual feather jig **10** for simultaneously holding a piece of wood stock **90** firmly against the lateral surface of a rip fence **94** and holding the piece of wood stock **90** firmly downward against the top surface of a worktable **98**.

[0019] The feather jig **10** disclosed includes a horizontally aligned lower feather board **12** which is slidingly attached to a worktable **98**, such as a table saw, router table, or shaper table. The lower feather board **12** includes a planar top surface **13**, a planar bottom surface **14**, left vertical edge **15**, a front vertical edge **17**, and a back vertical edge **18**. Aligned on the bottom surface **14** and extending from the front vertical edge **17** to the back vertical edge **18** is a 'T' channel bar **20**. The "T channel bar **20** is designed to slide freely into a standard 'T' slot **99** formed on the worktable **98** that is aligned parallel to the rip fence **94** or saw blade (not shown).

The 'T' slot **99** is approximately ¾ inches wide and the "T slot **20** is approximately ¾ inch width ⅜ inch deep.

[**0020**] Formed on the lower feather board **12** near the front and back vertical side edges **17**, **18** are two elongated slots **22**, **24**, respectfully. The slots **22**, **24** are transversely aligned on the lower feather board **12** and designed to receive two threaded adjustment knobs **25**, **25'**, respectively. Each knob **25**, **25'** includes a bolt **26**, **26'** attached to a turn handle **27**, **27'**, respectively. Attached to the 'T' channel bar **20** are two threaded bores (not shown) that attach to the distal ends of the bolts **26**, **26'** to adjustably connect the 'T' channel bar **20** to the bottom surface **14** of the lower feather board **12**.

[**0021**] During use, the lower feather board **12** can be adjusted in the lateral direction (indicated by "X" in **FIG. 1**) by loosening the two adjustment knobs **25**, **25'** The jig **10** may be moved longitudinally (indicated by the "Y" direction) by pushing or pulling the lower feather board **12** inside the 'T' slot **99**. By tightening the adjustment knobs **25**, **25'**, the lower feather board **12** is securely affixed to the worktable **98**.

[**0022**] Securely attached to the top surface **13** of the lower feather board **12** is an elongated riser block **30**. Formed on the top surface **31** of the riser block **30** is a fully extending, channel-shaped groove **32** designed to receive a complimentary-shaped slider arm **35**. During use, the slider arm **35** is able to slide freely in either direction (X direction) inside the groove **32**. In the preferred embodiment, the rise block **30** is sufficient in height to allow the upper feather board **55** discussed further below to extend over the top of a piece of wood stock **90** being cut or shaped. The riser block **30** also acts as a support structure for the cross bar **45** for securely holding the upper feather board **55** in a fixed elevated position over the piece of wood stock **90**. Formed on the slider arm **35** is a longitudinally aligned elongated slot **38**. During assembly, an adjustment knob **39** comprising a threaded bolt **40** and handle knob **41** extends through the slot **38** and attaches to a threaded bore (not shown) formed near one end of the riser block **30**. During use, the slider arm **35** is longitudinally aligned inside the groove **32** and then locked in position by tightening the adjustment knob **39** into the threaded bore. The slider arm **37** and the slot **38** are both is sufficient in length so that upper feather board **55** may remain attached to the riser block **30** and be selectively positioned over the left edge, right edge or over the center axis of a piece of wood stock **90**.

[**0023**] The distal end **37** of the slider arm **35** is permanently attached to the lower surface of a perpendicular aligned cross bar **45**. The cross bar **45** is elongated, rectangular structure that is adjustably mounted to the inside surface **56** of the upper feather board **55**.

[**0024**] The upper feather board **55** includes a planar inside surface **56**, a planar outside surface **57**, a top horizontal edge **58**, a bottom horizontal edge **59**, a front vertical edge **60** and a back vertical edge **61**. Formed near the opposite front and rear edges **60**, **61** are two vertically aligned elongated slots **63**, **65**, respectfully. During assembly, two adjustment knobs **67**, **67'** that includes two threaded bolts **68**, **68'**, and knob handles **69**, **69'**, extend through two bores formed at the crossbar **45** and into the two slots **63**, **65**, respectfully. The adjustment knobs **67**, **67'** are loosened or tightened to allow the upper feather board **55** to be vertically adjusted with respect to the crossbar **45** (indicated by "Z" on the drawings in **FIG. 1**).

[**0025**] Formed on the right vertical edge of the lower feather board **12** and on the lower edge on the upper feather board **55**, respectively, are two sets of diagonally aligned fingers **21**, **77** that press against a piece of wood stock **90** to simultaneously hold it against the rip fence **94** and against the top surface of the worktable **98**.

[**0026**] When assembled proper, the jig **10** is very stable on the worktable **98** and provides for a safe method to machine a piece of wood stock **90**. The jig **10** reduces fatigue normally experienced when trying to forcibly hold a piece of wood stock **90** against the rip fence **94** and downward on the worktable **98** with your fingers. Because the user's fingers don't need to be repositioned against the blade or bit, tool burns on the wood stock **90** are eliminated. When proper set-up, the piece of wood stock **90** can be simply pushed over the blade or bit and pulled out from the other end of the machine without getting hands or fingers anywhere near the tool.

[**0027**] The feather jig **10** is specifically designed to be used on standard table saws with miter T-slots. Table saws without a miter T-slot will require a machine shop to modify the old style miter slot into a miter T-slot. Most upper end saws will have the miter T-slot.

[**0028**] The feather jig **10** is also very useful on router tables with miter T-slots for doing long routing jobs. Several suppliers sell a miter T-channel that can be retro-fitted on existing router tables. A miter T-channel of ¾ inch by ⅜ inch size must be used, however, smaller size miter T-channels will require a different T-slot piece for mounting the feather jig **10** to the worktable.

[**0029**] In compliance with the statute, the invention described herein has been described in language more or less specific as to structural features. It should be understood, however, that the invention is not limited to the specific features shown, since the means and construction shown is comprised only of the preferred embodiments for putting the invention into effect. The invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the amended claims, appropriately interpreted in accordance with the doctrine of equivalents.

I claim:

1. A dual adjustable feather jig for holding a work piece firmly against the tool fence and at the same time holding the wood piece firmly down against the worktable, said jib comprising:

a. a lower feather board assembly that includes a lateral feather board with an adjustably mounted, downward extending 'T' channel capable to being mounted into the 'T' slot formed on the top surface of a standard table saw or router table, said lower feather board includes a first set of diagonally aligned fingers that press against a wood piece to hold the wood piece against a standard fence;

b. a 'T' channel locking means used to lock said 'T' channel on said lateral feather board;

c. a riser block transversely mounted on the top surface of said lateral feather board, said riser block including a longitudinally aligned slot;

d. a vertical feather board that includes a second set of diagonally aligned fingers that press against a piece of wood stock located below to hold the wood stock against the top surface of a worktable;

e. a lateral slider perpendicularly aligned and attached at one end to said vertical feather board, said lateral slider being inserted into said slot formed on said riser board enabling said vertical feather board to be positioned at different distances from said lateral feather board;

f. means for locking said lateral slider on said riser block; and,

g. means for adjustably locking said vertical feather board to said lateral slider.

2. The dual adjustable feather jig, as recited in claim 1, wherein said 'T' channel locking means is a 'T' channel bar that slides freely in a 'T' shaped slot formed on a worktable.

3. The dual adjustable feather jig, as recited in claim 1, wherein said means for locking said lateral slider in said riser block is a threaded adjustable knob that extends through said slider and attaches to said riser block.

4. The dual adjustable feather jig, as recited in claim 3, wherein said means for locking said lateral slider in said riser block is a threaded adjustable knob that extends through said slider and attaches to said riser block.

5. The dual adjustable jig, as recited in claim 1, wherein said means for adjustably locking said vertical feather board is a crossbar perpendicularly aligned and securely attached to said lateral slider, said crossbar being adjustably mounted on the rear surface of said vertical feather board.

6. The dual adjustable jig, as recited in claim 2, wherein said means for adjustably locking said vertical feather board is a crossbar perpendicularly aligned and securely attached to said lateral slider, said crossbar being adjustable mounted to the rear surface of said vertical feather board.

7. The dual adjustable jig, as recited in claim 3, wherein said means for adjustably locking said vertical feather board is a crossbar perpendicularly aligned and securely attached to said lateral slider, said crossbar being adjustable mounted to the rear surface of said vertical feather board.

8. A dual adjustable feather jig for simultaneously holding a piece wood stock firmly against the rip fence attached to a worktable and against the top surface of a worktable, said jib comprising:

a. lower feather board with a first set of diagonally aligned fingers formed along at least one edge that presses against a piece of wood stock located adjacent thereto;

b. means for sliding attached said lower feather board to the worktable parallel so that said lower feather board moves in direction parallel to said rib fence;

c. a vertical feather board located above and attached to said lower feather board, said vertical feather board including a second set of diagonally aligned fingers formed on one edge, said vertical feather board perpendicularly aligned over said lower feature board so said second set of diagonal fingers press downward over the top surface of a piece of wood stock while the first set of diagonally aligned fingers press inward and hold the piece of wood stock firmly against the rip fence;

d. means for sliding said vertical feather board horizontally over said lower feather board thereby enabling a user to adjust the location of the second set of diagonally aligned fingers over the piece of wood stock placed against the top surface of a worktable; and,

e. means for adjusting the height of said vertical feather board relative to said lower feather board to accommodate pieces of wood stock with different thickness.

9. The dual adjustable feather jig, as recited in claim 8, wherein said means for sliding said vertical feather board is a riser block attached to top surface of said lower feather board and a lateral slider longitudinally aligned over said riser block and perpendicularly aligned and attached at one end to said vertical feather board.

10. The dual adjustable feather jig, as recited in claim 9, wherein said means for adjusting the height of said vertical feather board relative to said lower feather board is a crossbar longitudinally aligned and adjustable to the rear surface of vertical feather board and attached to the distal end of said lateral slider.

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